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EXAMINER

TRIEU, THAI BA

ART UNIT	PAPER NUMBER
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3748

DATE MAILED: 04/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/673,799	<b>Applicant(s)</b> SUPER ET AL.	
	<b>Examiner</b> Thai-Ba Trieu	<b>Art Unit</b> 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-15 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5-9, 16, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 3, 4, 17 and 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/29/03</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informalities:

- On page 4, line 32, "**EGR cooler 26**" should be replaced by – **EGR cooler 28** --.

- On Page 6, lines 1-13 should be replaced by following for consistency of the whole specification:

-- The control moduled 50 may also be connected to [[a]] an air temperature sensor 56, [[a]] an air humidity sensor 58, and [[a]] an EGR mass flow sensor. The air temperature sensor 56 and the air humidity sensor 58 may be disposed in any suitable location, such as in the air conduit 38. Optionally, the air temperature sensor and the air humidity sensors 56, 58 may be combined into a single sensor or sensor module. The EGR mass flow sensor 60 may be disposed in conduit 24 to provide a signal indicative the mass flow rate of the recirculated exhaust gas. For clarity, in Figure 1 the connections between the control module 50 and sensors 56, 58, and 60 are denoted by references TCI, RH, and EGR\_Rate, respectively.

The [[temperatures sensors]] intake manifold temperature sensor and the air temperature sensor 54, 56 may be of nay one suitable type, such as a thermistor or thermocouple. Likewise, the intake

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**manifold pressure sensor** 52 may be of any suitable type, such as a pressure switch.—

- On Page 7, line 15, ***“a humidity sensor 58”*** should be replaced by ***—an air humidity sensor 58--*** (for consistency).

### ***Claim Objections***

Claims 1, 5-6, 8 are objected to because of the following informalities:

- In claim 1, lines 7-8, ***“sixth signal indicative of an engine speed”*** is a double recitation.

- In claim 5, line 2, ***“an”*** before ***“intake manifold temperature”*** should be replaced by ***-- the --***.

- In claim 6, line 2, ***“an”*** before ***“intake manifold pressure”*** should be replaced by ***-- the --***.

- In claim 8, line 2, ***“an”*** before ***“air humidity”*** should be replaced by ***-- the --***.

- In claim 20, line 1, ***“20”*** after ***“The method of claim”*** should be replaced by ***-- 19 --***, since claim 20 cannot depend on itself; and lines 1-2, ***“a”*** before ***“temperature signal”*** should be replaced by ***-- the --***.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claims 5-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically,

- In claim 5, lines 2-3, the phrase of ***"a temperature sensor located near the intake manifold"*** render the claim indefinite, since it is not clear that ***how near*** the intake manifold a temperature sensor is located such as 1 cm, or 2cm, or 1 inch, or 2 inches etc....

- In claim 6, lines 2-3, the phrase of ***"a pressure sensor located near the intake manifold"*** render the claim indefinite, because of the same reason set forth above.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

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Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

***Claims 1-2, 6-7, and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Brunemann et al. (Pub. Number US 2003/0192516 A1).***

Regarding claims 1-2, Brunemann et al disclose a method of controlling condensation in an engine system (10), the engine system having an engine (12) including:

an intake manifold (14) and an exhaust manifold (30) (See Figure 1);

an exhaust gas recirculation valve (36) that regulates an amount of exhaust gas recirculated from the exhaust manifold (30) to the intake manifold (14) (See Figure 1);

a first signal indicative of an intake manifold temperature (via 54 and 56) (See Figure 1; and Paragraph [0038]);

a second signal indicative of an intake manifold pressure (via 58 and 60) (See Figure 1; and Paragraph [0039]);

a third signal and a sixth signal indicative of an engine speed (via 50 and 52) (See Figure 1; and Paragraph [0037]);

a fourth signal indicative an air humidity (via 84 and 86) (See Figure 1; and Paragraph [0045]);

a fifth signal indicative an air temperature (via 80 and 82, and 88 and 90) (See Figure 1; and Paragraph [0044]);

the method comprising the steps of :

calculating as a function of the first, second, third, fourth, fifth, and sixth signals (54 and 56; 58 and 60; 50 and 52; 84 and 86; 80 and 82, and 88 and 90) as a critical value indicative of the potential for condensation in the intake manifold (See Figures 1 and 4, Abstract);

determining whether the critical value (Read as intake manifold temperature value) exceeds a threshold value indicative of the point at which condensation will occur in the intake manifold (See Figures 4-6, and Paragraphs [0105] and [0106]);

closing the exhaust gas recirculation valve if the value is exceeded; and opening the exhaust gas recirculation valve if the value is not exceeded (See Abstract, Paragraphs [0047], [0094], [0095], [0096], [0104], [0105], and [0106]).

**Regarding claims 6-7,** Brunemann et al further disclose the second signal indicative of an intake manifold pressure being provided by a pressure sensor (58) located near the intake manifold (See Figure 1); and a third signal indicative of an engine speed being provided by an engine control module (See Figure 1, and Paragraph [0037]).

**Regarding claim 16**, Brunemann et al disclose a method of controlling condensation in an engine system (10), the engine system having an engine (12) having:

an intake manifold (14) and an exhaust manifold (30) (See Figure 1);

a compressed air device (16, 18, 26) adapted to provide a compressed gas to the intake manifold (14) (See Figure 1);

an exhaust gas recirculation valve (36) that regulates an amount of exhaust gas recirculated from the exhaust manifold (30) to the intake manifold (14) (See Figure 1); and

a set of signals indicative of the operating state of the engine system (10) (See Figure 1), the method comprising the steps of:

providing the set of signals indicative of

intake manifold temperature (via 54 and 56) (See Figure 1; and Paragraph [0038]),

intake manifold pressure (via 58 and 60) (See Figure 1; and Paragraph [0039]);

intake air temperature (via 88 and 90) (See Figure 1; and Paragraph [0044]);

intake air humidity (via 84 and 86;) (See Figure 1; and Paragraph [0045]);

exhaust gas mass flow rate (via 100 and 102) (See Figure 1; and Paragraph [0095]);



determining a critical value indicative of condensation in the intake manifold; comparing the critical value to a predetermined value (Read as a predated intake manifold temperature value) (See Figures 4-6, Abstract, and Paragraphs [0105] and [0106]);

actuating the exhaust gas recirculation valve toward a closed position if the critical value is within the predetermined range; and toward a closed position if the critical value is outside the predetermined range(See Abstract, Paragraphs [0047], [0094], [0095], [0096], [0104], [0105], and [0106]).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brunemann et al. (Pub. Number 2003/0192516 A1), in view of Baeuerle et al. (Patent Number 5,442,918).***

Brunemann et al. disclose the invention as recited above; however, Brunemann fails to disclose the position of a temperature sensor being located near the intake manifold.

Baeuerle et al. teach that it is conventional in the turbocharged internal combustion engine art, to position the intake manifold temperature (108) near the intake manifold (Not shown) (See Figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have positioned an intake manifold temperature sensor near the intake manifold, as taught by Baeuerle et al., since the use thereof would have detected the temperature.

***Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brunemann et al. (Pub. Number 2003/0192516 A1), in view of Bhargava et al. (Patent Number 6,575,148 B1).***

Brunemann et al. disclose the invention as recited above, and further disclose the air intake temperature sensor (80) being located in the air inlet conduit (See Figure 1); however, Brunemann fails to disclose the position of a humidity sensor being located in an air inlet conduit

Bhargava et al. teach that it is conventional in the turbocharged internal combustion engine art, to position an air humidity sensor (76) in an air inlet conduit (28) (See Figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made, to have positioned an air humidity sensor in an air inlet conduit, as taught by Bhargava et al., since the use thereof would have detected the air humidity of the air intake.

***Allowable Subject Matter***

Claims 10-15 are allowed.

Claims 3-4 and 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: The prior art fails to disclose or render obvious the claimed combination of a method for controlling condensation in a vehicle including:

*"calculating an IMT critical value as a function of an intake manifold temperature signal, an intake manifold pressure signal, an engine speed signal, an air temperature signal, and an exhaust gas mass flow rate signal; determining the IMT critical value exceeding a threshold value; and closing the EGR valve if the threshold value is exceeded."*

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Baldwin et al. (Pub. Number US 2003/0034018 A1) disclose a method and an apparatus configured to maintain a desired engine emissions level.
- Kubesh et al. (US Patent Number 5,735,245) disclose a method and an apparatus for controlling Fuel/air mixture in a lean burn engine.
- Gray, Jr. (Patent Number 6,651,432 B1) disclose a controlled temperature combustion engine.
- Rimnac et al. (Pub. Number US 2003/0114978 A1) discloses condensation control for internal combustion engine using EGR.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (703) 308-6450. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB  
April 13, 2004

  
Thai-Ba Trieu  
Patent Examiner  
Art Unit 3748